

CLAIMS

What is claimed is:

1. A method of roaming between a cellular network and a wireless network comprising the steps of:
 - receiving an invitation over the wireless network, wherein the invitation is sent from a mobile communications device engaged in a cellular call over a cellular voice channel;
 - authenticating the mobile communications device over the wireless network;
 - sending an acknowledgement of the invitation to the mobile communications device over the wireless network; and
 - initiating a handoff, wherein the established cellular call is switched from the cellular network to the wireless network.
2. The method of claim 1, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.
3. The method of claim 1, wherein the invitation is formatted using Session Initiation Protocol.
4. The method of claim 1, wherein said initiating step comprises the step of a gateway sending a communication to a mobile switching center indicating that the mobile communications device has received a signal having a minimum amount of power from a wireless access point in the wireless network.
5. The method of claim 4, wherein said initiating step further comprises the step of setting up an Internet Protocol streaming session over the Internet and the wireless network to which the cellular call is switched.
6. The method of claim 5, further comprising the step of tearing down the cellular call.

7. A method of roaming between a cellular network and a wireless network comprising the steps of:

during an established cellular call using a cellular voice channel, detecting the wireless network within a mobile communications device;

sending an invitation over the wireless network to a gateway interface linking the cellular network with the Internet;

authenticating the mobile communications device;

receiving an acknowledgement of the invitation; and

initiating a handoff, wherein the established cellular call is switched from the cellular network to the wireless network.

8. The method of claim 7, wherein the invitation is sent only if a signal detected from the wireless network is more powerful than a signal from the cellular network.

9. The method of claim 7, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols and the invite is formatted using Session Initiation Protocol.

10. The method of claim 7, said initiating step further comprising the step of attenuating the signal provided to the cellular network from the mobile communications device, thereby causing the cellular network to handoff of the cellular call.

11. The method of claim 7, wherein a gateway interface between the cellular network and the Internet sends a signal to the cellular network indicating that the mobile communications device has received a signal of adequate power from an access point in the wireless network.

12. The method of claim 7, wherein the acknowledgement is sent from a gateway interface between the cellular network and the Internet.

13. A method of roaming between a cellular network and a wireless network comprising the steps of:

during an established cellular call, detecting a signal from the wireless network;
comparing a measure of strength of the signal received from the wireless network with a measure of strength of a signal received from the cellular network; and
initiating a handoff of the cellular call from the cellular network to the wireless network according to said comparing step.

14. The method of claim 13, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

15. A method of roaming between a cellular network and a wireless network comprising the steps of:

receiving a communication over the cellular network, wherein the communication is sent from a mobile communications device engaged in a wireless call over the wireless network;

authenticating the mobile communications device over the cellular network;
sending an acknowledgement of the communication to the mobile communications device over the cellular network; and

initiating a handoff, wherein the established wireless call is switched from the wireless network to the cellular network.

16. The method of claim 15, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

17. The method of claim 15, wherein said initiating step comprises the step of a mobile switching center sending a communication to a gateway indicating that the mobile communications device has received a signal having a minimum amount of power from the cellular network.

18. The method of claim 17, wherein said initiating step further comprises the step of setting up a cellular voice link to which the wireless call is switched.

19. The method of claim 18, further comprising the step of tearing down a streaming session over which the wireless call took place in the wireless network.

20. A method of roaming between a cellular network and a wireless network comprising the steps of:

 during an established call over the wireless network, detecting the cellular network;

 establishing a communications link with a mobile data base station of the cellular network, such that a streaming session in the wireless network over which the call is conducted is terminated; and

 continuing the call over a voice channel of the cellular network.

21. The method of claim 20, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

22. A method of roaming between a cellular network and a wireless network comprising the steps of:

 during an established call conducted over the wireless network using a streaming session, detecting a signal from the cellular network;

 comparing a measure of strength of the signal received from the cellular network with a measure of strength of a signal received from the wireless network; and

 initiating a handoff of the call from the wireless network to the cellular network according to said comparing step.

23. The method of claim 22, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

24. A system for roaming between a cellular network and a wireless network comprising:

- an access point configured to wirelessly communicate with devices and facilitate communications over the Internet;

- a gateway configured as an interface between the Internet and the cellular network;

- a mobile data base station configured to communicate with mobile communications devices over a cellular voice channel of the cellular network;

- a Session Initiation Protocol proxy server configured to perform call routing over the Internet; and

- a mobile switching center configured to route cellular calls and link said mobile data base station with said gateway;

wherein said gateway and said mobile switching center work cooperatively to switch calls between the cellular network and the wireless network via the Internet, wherein calls over the Internet are managed by said Session Initiation Protocol proxy server.

25. The system of claim 24, wherein a call has been established over a voice channel of the cellular network, wherein said gateway receives an invite formatted using Session Initiation Protocol from a mobile communications device having detected the wireless network and authenticates a Session Initiation Protocol client operating in the mobile communications device.

26. The system of claim 25, wherein said gateway acknowledges the session initiation protocol invite and initiates an Internet Protocol streaming session to the mobile communications device.

27. The system of claim 26, wherein said mobile switching center handoffs a cellular call to another mobile data base station upon detecting reduced signal power from the mobile communications device and said gateway signals said mobile switching center that a signal of sufficient power has been received via the wireless network.

28. The system of claim 27, wherein said mobile switching center switches the call from the mobile data base station to the gateway.

29. The system of claim 24, wherein said gateway further is configured to function as an interface to the public switched telephone network.

30. The system of claim 24, wherein a call has been established over the wireless network using a streaming session, wherein said gateway terminates the streaming session and transfers the call to said mobile switching center, said mobile switching center routing the call to said mobile data base station.

31. A system for roaming between a cellular network and a wireless network comprising:

- means for receiving an invitation over the wireless network, wherein the invitation is sent from a mobile communications device engaged in a cellular call over a cellular voice channel;

- means for authenticating the mobile communications device over the wireless network;

- means for sending an acknowledgement of the invitation to the mobile communications device over the wireless network; and

- means for initiating a handoff, wherein the established cellular call is switched from the cellular network to the wireless network.

32. A system for roaming between a cellular network and a wireless network comprising:

- means for detecting the wireless network within a mobile communications device during an established cellular call using a cellular voice channel;

- means for sending an invitation over the wireless network to a gateway interface linking the cellular network with the Internet;

- means for authenticating the mobile communications device;

means for receiving an acknowledgement of the invitation; and

means for initiating a handoff, wherein the established cellular call is switched from the cellular network to the wireless network.

33. A system for roaming between a cellular network and a wireless network comprising:

means for detecting a signal from the wireless network during an established cellular call;

means for comparing a measure of strength of the signal received from the wireless network with a measure of strength of a signal received from the cellular network; and

means for initiating a handoff of the cellular call from the cellular network to the wireless network according to a comparison made by said means for comparing.

34. A system for roaming between a cellular network and a wireless network comprising:

means for receiving a communication over the cellular network, wherein the communication is sent from a mobile communications device engaged in a wireless call over the wireless network;

means for authenticating the mobile communications device over the cellular data network;

means for sending an acknowledgement of the communication to the mobile communications device over the cellular network; and

means for initiating a handoff, wherein the established wireless call is switched from the wireless network to the cellular network.

35. A system for roaming between a cellular network and a wireless network comprising:

means for detecting the cellular network during an established call over the wireless network;

means for establishing a communications link with a mobile data base station of the cellular network, such that a streaming session in the wireless network over which the call is conducted is terminated; and

means for continuing the call over a voice channel of the cellular network.

36. A system for roaming between a cellular network and a wireless network comprising:

means for detecting a signal from the cellular network during an established call conducted over the wireless network using a streaming session;

means for comparing a measure of strength of the signal received from the cellular network with a measure of strength of a signal received from the wireless network; and

means for initiating a handoff of the wireless call from the wireless network to the cellular network according to a comparison made by said means for comparing.

37. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

receiving an invitation over a wireless network, wherein the invitation is sent from a mobile communications device engaged in a cellular call over a cellular voice channel in a cellular network;

authenticating the mobile communications device over the wireless network;

sending an acknowledgement of the invitation to the mobile communications device over the wireless network; and

initiating a handoff, wherein the established cellular call is switched from the cellular network to the wireless network.

38. The machine readable storage of claim 37, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

39. The machine readable storage of claim 37, wherein the invitation is formatted using Session Initiation Protocol.

40. The machine readable storage of claim 37, wherein said initiating step comprises the step of a gateway sending a communication to a mobile switching center indicating that the mobile communications device has received a signal having a minimum amount of power from a wireless access point in the wireless network.

41. The machine readable storage of claim 40, wherein said initiating step further comprises the step of setting up an Internet Protocol streaming session over the Internet and the wireless network to which the cellular call is switched.

42. The machine readable storage of claim 41, further comprising the step of tearing down the cellular telephone call.

43. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

- during an established cellular call using a cellular voice channel over a cellular network, detecting a wireless network within a mobile communications device;

- sending an invitation over the wireless network to a gateway interface linking the cellular network with the Internet;

- authenticating the mobile communications device;

- receiving an acknowledgement of the invitation; and

- initiating a handoff, wherein the established cellular call is switched from the cellular network to the wireless network.

44. The machine readable storage of claim 43, wherein said invitation is sent only if a signal detected from the wireless network is more powerful than a signal from the cellular network.

45. The machine readable storage of claim 43, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols and the invite is formatted using Session Initiation Protocol.

46. The machine readable storage of claim 43, said initiating step further comprising the step of attenuating the signal provided to the cellular network from the mobile communications device, thereby causing the cellular network to handoff of the cellular call.

47. The machine readable storage of claim 46, wherein a gateway interface between the cellular network and the Internet sends a signal to the cellular network indicating that a signal of adequate power has been detected by the mobile communications device from an access point in the wireless network.

48. The machine readable storage of claim 46, wherein the acknowledgement is sent from a gateway interface between the cellular network and the Internet.

49. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

during an established cellular call over a cellular network, detecting a signal from a wireless network;

comparing a measure of strength of the signal received from the wireless network with a measure of strength of a signal received from the cellular network; and

initiating a handoff of the cellular call from the cellular network to the wireless network according to said comparing step.

50. The machine readable storage of claim 49, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

51. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

receiving a communication over a cellular network, wherein the communication is sent from a mobile communications device engaged in a wireless call over a wireless network;

authenticating the mobile communications device over the cellular network;

sending an acknowledgement of the communication to the mobile communications device over the cellular network; and

initiating a handoff, wherein the established wireless call is switched from the wireless network to the cellular network.

52. The machine readable storage of claim 51, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

53. The machine readable storage of claim 51, wherein said initiating step comprises the step of a mobile switching center sending a communication to a gateway indicating that the mobile communications device has received a signal having a minimum amount of power from the cellular network.

54. The machine readable storage of claim 53, wherein said initiating step further comprises the step of setting up a cellular voice link to which the wireless call is switched.

55. The machine readable storage of claim 54, further comprising the step of tearing down a streaming session over which the call took place in the wireless network.

56. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

during an established call over a wireless network, detecting a cellular network;
establishing a communications link with a mobile data base station of the cellular network, such that a streaming session in the wireless network over which the call is conducted is terminated; and
continuing the call over a voice channel of the cellular network.

57. The machine readable storage of claim 56, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.

58. A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

during an established call conducted over a wireless network using a streaming session, detecting a signal from a cellular network;

comparing a measure of strength of the signal received from the cellular network with a measure of strength of a signal received from the wireless network; and

initiating a handoff of the wireless call from the wireless network to the cellular network according to said comparing step.

59. The machine readable storage of claim 58, wherein the wireless network is configured according to at least one of the 802.11, 802.15.3, or 802.16 communications protocols.